

FORLORN AND FERVENT: RELIGIOUS RADICALIZATION OF THE MEEK

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## Abstract

Compensatory Control Theory posits that the belief in an orderly and willed world that is under the control of external or personal forces is an innate human need, and people will use whatever sources of control are at their disposal to defend that belief. This thesis extends Compensatory Control theory by proposing external and personal sources of control are not entirely substitutable; rather they are disposition-dependent. This thesis specifically assessed whether participants with at least some forms of low but not high dispositional personal control would react with religious zeal following threat to external sources of control. Across two studies participants were measured for dispositional personal control and randomly assigned to an external control threat or no-threat condition. In Study 1, an unstable economic forecast heightened external control religious zeal among participants with low personal control dispositions. In Study 2, reflecting on a poor relationship heightened religious zeal on an independent religious zeal measure. These results help explain why different life events can trigger religious extremism for different types of people.

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## Introduction

In an important religious story sacred to Jews, Christians, and Muslims Abraham obediently follows God's order to take a knife and sacrifice his most beloved son Isaac. The inspiration derived from this story about willingness to kill even one's own child as an act of religious devotion illustrates the power of religion to justify extreme violence. Unfortunately, more than two millennia later, humans are still powerfully receptive to such extremes for the sake of religion. In 2001, nineteen men inspired by a radical strain of Islam flew four passenger airliners into the World Trade Center, Pentagon, and a Pennsylvanian field, killing more than three thousand people. In 2014, more than 12,000 foreigners joined the al-Qaeda splinter group, the Islamic State in Iraq and Syria (ISIS), killing hundreds of civilians and displacing more than 1.2 million Iraqis.

What makes religious extremism so appealing? This thesis investigates the hypothesis that part of its power may come from its capacity to impart a meaningful sense of control and order onto reality and human life, when that sense of control and order is otherwise precarious. Compensatory control theory proposes that belief in an orderly and stable world that is under control of personal or external forces is one of the most basic human needs that can trump other powerful human motivations. Perceptions that things are under control shield people from the vulnerable anxiety that arises from awareness that important life events can be affected by random factors (Kay, Gaucher, McGregor, & Nash, 2010; Kay, Gaucher, Napier, Callan, & Laurin, 2008; Kay, Moscovitch, & Laurin, 2010; Kay, Whitson, Gaucher, & Galinsky, 2009; Laurin, Kay, & Moscovitch, 2008). According to compensatory control theory it does not matter whether the control comes from personal or external sources. People only need to know that things are not random and chaotic, and that they are under control. For example, in some compensatory

control experiments, threats to personal control that involve restricted emigration caused increased support for the status quo, even in domains unrelated to mobility (e.g., gender wage gap) (Laurin, Shepherd, & Kay, 2010). In others, threats to external control that involve government instability caused heightened belief in a controlling god (Kay et al., 2009). Still others show that threats to external control involving challenges to a federal healthcare system led to increased illusory perceptions of personal control on a random task (Kay et al., 2008). A conclusion from compensatory control research is that sources of control are interchangeable and people can use whatever available sources of control, personal or external, that are at their disposal.

Religion may be a powerful source of compensatory control because it offers opportunities to both bolster personal control through personal zeal for one's own religious ideals, and external compensatory control through submission to the order-purveying power of gods and religious groups. Past research on compensatory religious devotion has focused on zeal for personal religious ideals that is more akin to personal control (see McGregor, 2006; McGregor, Nash, & Prentice, 2010; McGregor, Prentice, & Nash, 2013). For example, in one experiment threats to personal control related to academic ability caused increased confidence and adherence to personal religious beliefs, but not willingness to commit acts of extreme obedience for the religious group (McGregor et al., 2010, Study 1). A novel feature of the present research is that it focuses on external control in the form of faith, obedience, and loyalty to gods and religious groups that can provide external control beyond personal control. Specifically, in both studies we threatened aspects of external control and assessed participants' subsequent religious ingroup chauvinism and dependence on the authoritative power of God for their own well-being.

The second novel feature of this thesis research is that it focuses on the compensatory control preferences of people dispositionally low in personal control. Past research has found that



threats to personal control related to academic ability increase compensatory personal control aspects of religious devotion for people who are dispositionally high in traits related to personal control, such as high promotion focus and high approach motivation (McGregor et al., 2010). The present research examines the corollary hypothesis. It tests whether threats to external control will increase compensatory external control aspects of religious devotion for people who are dispositionally low in traits related to personal control.

### **Compensatory Control**

Humans are powerfully motivated to protect and bolster perceptions of personal control (Kelley, 1971; Kelly, 1955; Perkins 1968; Presson & Benassi, 1996; Seligman, 1975, 1976; Skinner, 1995; White, 1959). This may be because personal control beliefs shield the self from the anxiogenic reality that important life events can be altered by randomness and chance (Kay et al., 2009). Past observations indeed indicate that personal control beliefs promote both physical and mental health. For example, in some experiments, high personal control was associated with lower levels of distress and anxiety among persons coping with cancer (Dagan et al., 2011; Henselmans et al., 2010). In others, nursing home residents imbued with a sense of personal control reported greater happiness and active participation (Langer & Rodin, 1976), as well as greater health and decreased mortality in an 18 month follow-up study (Rodin & Langer, 1977).

Numerous research programs center on the hypothesis that people have an innate desire to understand the world as something based on predictable and controllable cause-and-effect relationships. Accordingly, some propose that reminders that the world is unpredictable or uncontrolled promote illusory perceptions of cause-and-effect connections in random stimuli. Indeed, experimental reductions in personal control cause noticing of focal images where none exist in “snowy” pictures, faith in efficacy of superstitious behaviors like knocking on wood, belief in

conspiracy theories, and an increased preferences for orderly structure in the world (Whitson & Galinsky, 2008).

Others posit that humans are motivated by compensatory control needs to understand the status quo as legitimate, fair, and essential, particularly by those most disadvantaged. Although seemingly paradoxical, these kinds of system justification beliefs make things seem under external control and people who lack personal control need this most. For example, people with high system justification dispositions were more likely to deny climate change and less likely to promote environmental action (Feygina, Jost, & Goldsmith, 2010, Study 1). Similarly, women but not men were less sympathetic toward a female victim and more supportive of a university perpetrator of gender discrimination (Jost & Burgess, 2000, Study 2).

Still others promote that death reminders, the ultimate threat to personal control (Fritzsche, Jonas, & Fankhänel, 2008), foster belief in cultural values and worldviews that transcend beyond temporal existence (Greenberg, Porteus, Simon, & Pyszczynski, 1995). For example, reflecting on what would happen to them as they physically die and the emotions it arouses in them caused religious participants to promote religious in-group members and denigrate religious out-group members (Greenberg et al., 1990, Study 1), Americans to bolster support for the current US President George W. Bush, his counterterrorism policies, and their likelihood of voting for him in the upcoming election (Landau et al., 2004, Studies 1, 3, 4), white participants to support white racists (Greenberg, Schimel, Martens, Solomon, & Pyszczynski, 2001, Studies 2 and 3), Iranian college students to support terrorism martyrs and consider martyrdom attacks themselves and politically conservative American college students to support extreme military interventions with risk of significant civilian casualties (Pyszczynski et al., 2006, Studies 1 and 2). These findings support the view that viewing the world is haphazard and uncontrolled is psychologically distressing

(Pennebaker & Stone 2004), and perceptions of personal control offer effective and economical armor against such threats (Kay et al., 2009).

Perceptions of personal control can be nurtured and cultivated through personal goal pursuit, via a motivational strategy known as promotion focus. Promotion focus centers on the eager pursuit of a “gain”, while its counterpart, prevention focus, on actively avoiding a “loss” (Summerville & Roese, 2008). Promotion focussed pursuit of personal goals, from academic success to improving fitness, develops a shield of personal control that protect against reminders the world is haphazard and uncontrolled. Indeed recent research finds that promotion focussed personal goal pursuit heighten feelings of personal control, confidence, and approach motivation (McGregor et al., 2007, 2010), while dispositional measures of promotion focus are closely related to approach motivation (Summerville & Roese, 2008). These findings support the notion that promotion focus is closely related to perceptions of personal control.

While Compensatory Control Theory posits personal and external sources are substitutable and interchangeable (Kay et al., 2010), culture seems to incline some people more toward compensatory external control than personal control. Asian American children spent significantly more time on word puzzles when they believed the task and marker colour were chosen by their mother vs. themselves. In contrast, Caucasian American children spend more time on word puzzles when they chose the task and marker colour themselves (Iyengar & Lepper, 1999, Study 1). Similarly, Caucasian Americans were more likely to denigrate a pen assigned to them by an experimenter after having been previously allowed to select between four superior pens. In contrast, Asian Americans rated the experimentally assigned inferior pen favourably regardless of their prior choice (Study 3 and 4) (Kim & Sherman, 2007).

Situations and dispositions (e.g., low promotion) may also incline some people to rely on external sources of compensatory control rather than personal sources. For example, recalling a situation in which they had no personal control increased participants' belief in a controlling god, and support for their federal government, while those with low personal control dispositions promoted greater government responsibility (Kay et al. 2008). In another study, recalling a situation in which they had no control increased participants' support of Intelligent Design (Rutjens, van der Pligt, & Van Harreveld, 2010). While identifying with a group increased feelings of perceived personal control (Greenaway, in press). This may be because those with low personal control may be more cognizant of how external sources can affect their outcomes and well-being (Laurin, Fitzsimons, & Kay, 2011). Accordingly, they depend and invest more in external systems of control such as societal fairness (Laurin et al., 2011), sociopolitical systems (Laurin et al., 2010), authoritative leaders (Fennis & Aarts, 2012), and even hostile enemies that can make the seem orderly (Sullivan, Landau, & Rothschild, 2010).

### **Compensatory Religion**

When external control is under threat, e.g., when economies crash, governments crumble, or other people and relationships become unreliable, how might people with low personal control maintain a sense that the world is under control? People with low personal control dispositions may only be able to rely on external systems for support and certainty, since their own personal control resources are low, and might therefore experience particularly acute anxious arousal when those external sources of control are threatened (Kay, McGregor, et al., 2010). Promoting compensatory personal convictions is viable for people with high personal control dispositions, but not for those with low personal control dispositions, who have little investment in their own volition (McGregor, Gailliot, Vasquez, & Nash, 2007). Accordingly, we hypothesize that people

with low personal control dispositions will tend to compensate by promoting an alternative external system of control, specifically, authoritarian varieties of religious devotion. This hypothesis was suggested by past research indicating that people who reported being relatively disempowered in their everyday goals reacted to reminders of relationship uncertainties (an external control threat) with the most reactive increases in religious zeal (McGregor et al., 2010).

Religious zeal may be an especially felicitous source of external control for relieving anxieties about randomness because promoting it can provide exhilarating relief from anxious distress. William James' (1902/1958) account of new religious converts indicates that religious zeal is associated with heightened energy, resilience, childish vigor, clarity, power, and focus, and freedom from worries and ruminations that felt overwhelming before conversion. Religious ideals can also never be disproven (Friesen, Campbell, & Kay, 2015), which may shield religious belief from threat. They can also be pursued in the privacy of one's own mind, free from temporal frustration. Religious zeal further requires few resources to help maintain a sense that the world is controlled and willed. Focusing on any of the elements of religious zeal—highly valued ideals, groups, convictions—for just a few minutes relieves threat-induced anxious uncertainties (McGregor & Marigold, 2003, Study 4; McGregor, Nail, Marigold, & Kang, 2005, Study 4; McGregor, Zanna, Holmes, & Spencer, 2001, Study 1). Moreover, reflecting on religious beliefs for only a few minutes mutes neural markers of anxious distress (Inzlicht, McGregor, Hirsh, & Nash, 2009; Inzlicht & Tullet, 2010). Pursuing religious ideals may thus offer pleasurable, economical and effective relief from control threat.

Religion's power and versatility may also come from its capacity to empower both personal and external control, for different kinds of people. People with high personal control dispositions may turn to it for inspiration to fuel their personal control and aspirations, akin to what

Allport and Ross (1967) referred to as intrinsic religion. In contrast, people with low personal control dispositions may turn to it as a purveyor of extrinsic benefits including a sense that things are under control, belonging to a group and receiving authoritative external guidance for actions (Allport & Ross, 1967).

## **Overview**

Although extant research suggests that people with high personal control dispositions (e.g., high promotion focus and high approach motivation) increase their reliance on alternative sources of personal control when an aspect of personal control has been threatened (McGregor, Nash, & Inzlicht, 2009; McGregor et al., 2010), it remains unclear whether or not people with low personal control dispositions will be especially motivated to cling to external sources of compensatory control. Recent neural research linking religious belief to reduced anxious arousal among people with both high and low personal control dispositions (Inzlicht et al., 2009; Inzlicht & Tullet, 2010), as well as statistics on religious adherence worldwide suggests that religion may serve as a powerful stabilizing force regardless of personal disposition. While Kay and colleagues (2009) found that compromised external sources of control promote religious devotion, the research did not investigate the extent to which the reactive religious zeal was most prevalent among people with high vs. low personal control dispositions. It also did not distinguish between personal and external forms of compensatory religious control.

To fill this empirical gap I conducted two studies to assess whether two different external control threats would cause people with low personal control dispositions to exaggerate external-control aspects of religious zeal. Study 1 tests the hypothesis that the perception of economic instability (an external control threat) will cause people with low personal control dispositions to become more radically zealous in devotion to external-control-conferring aspects of religion (i.e.,

obedient affiliation and devotion to their religious groups and god) but not to internal-control aspects (personal religious beliefs). Study 2 tests the hypothesis that the perception of relationship uncertainty will heighten people's belief in God's protective power.

### **Study 1**

First, I measured individual differences in personal control dispositions. The dispositional assumptions of my hypothesis would be supported if effects were strongest for people who scored low on scales related to dispositional reliance on personal control, such as promotion focus and approach motivation. I then experimentally manipulated perceptions of external control by having participants read a passage that depicted the global economy as either being uncertain and out of control, or as being healthy and under control. Finally, I assessed aspects of religious zeal related to personal control (e.g., personal certainties and confidence) and external control (e.g., authoritarian devotion to the religious group and God). I hypothesized that the external control threat should increase low-personal-control participants' extrinsic but not intrinsic religious zeal. For example, after external control threat participants should be more willing to die for their religious group or engage in religiously extreme behavior, but not necessarily be more confident in their personal religious beliefs.

### **Method**

#### **Participants and Design**

One hundred and sixty York University undergraduates (86.2% female,  $M_{\text{age}} = 20.06$ ,  $SD_{\text{age}} = 4.57$ ) participated in an online session for partial course credit toward their introductory psychology course. Participants completed trait measures of personal control, and were then randomly assigned to either an external-control threat or a no threat condition. They then completed

the main dependent variables that assessed personal-control-related and external-control-related aspects of religious zeal.

## **Procedure**

### **Dispositional Measures of Personal Control and Threat Vulnerability.**

After signing up to participate online in a study ostensibly about their opinions and worldviews, participants began by completing two dispositional personal control scales. The Rosenberg Self-Esteem Scale (RSES; Rosenberg, 1965) includes 10 statements such as, “At times I feel I am no good at all,” “I take a positive attitude toward myself,” and “I feel that I have a number of good qualities,” rated on a 1 (strongly disagree) to 5 (strongly agree) scale (see Appendix 1). The Promotion-Focus subscale of the Regulatory Focus Scale (Lockwood et al., 2002) consists of 9-items including, “I typically focus on the success I hope to achieve in the future,” and “I see myself as someone who is primarily striving to reach my “ideal self” to fulfill my hopes, wishes, and aspirations,” rated on a 1 (not at all true of me) to 4 (very true of me) scale (see Appendix 6).

Recent research finds the Promotion Focus sub subscale to closely measure approach motivated strategies aimed at pursuing personal ideals (Summerville & Roese, 2008). Further, high scores on a composite measure of RSES and Promotion Focus positively predicted personal religious zeal following an academic personal control threat (Study 2, McGregor et al., 2010), while low Promotion Focus scores predicted superstitious and paranormal belief following a relational external control threat (Prentice, Hayes, McGregor, & Ferriday, 2015). Similarly, perceptions of personal control over important personal goals was positively correlated with promotion focus,  $r(196) = .56, p < .001$  in an unpublished dataset (Ferriday & McGregor, 2011). In the present research we thus operationalized low dispositional personal control in terms of low scores on the



Promotion Focus scale. Re-analysis of data from a previously published study in which an external control threat (relationship threat) increased scores on a measure of religious zeal featuring many items that tapped external control religious revealed that low promotion-focus was the only dispositional variable to significantly augment the effect of the threat on religious zeal. Given the role of self-esteem in past threat and defense research, however, we tested both dispositions in the current research.

We also collected data on various other personality scales related to self-regulation for exploratory purposes and Table 1 presents the intercorrelations of the personal control disposition measures of focal interest with these other dispositional measures, along with the personal and external control religious zeal dependent measures.

**Economic External Control Threat.** Participants were randomly assigned to the economic external control threat or a no-threat condition. In both conditions, participants read an excerpt from an economic report ostensibly written by leading economists at Harvard and Stanford Universities (see Appendices 7a and 7b). In the economic external control threat condition, the report describes a dire economic forecast; for example, “although the North American economies may seem to be recovering from the 2009 economic crisis, there are ominous indicators that this false recovery will soon give way to economic collapse as never seen before.” In the no-threat condition, participants read a similar passage; however, the report will predict a stable economic future. For example, “the North American economies are recovering from the 2009 economic crisis and that there are indicators that this recovery will be stable.” Participants in both conditions indicated how well they understood the passage, on a scale from 1 (very poorly) to 5 (very well).

**Religious Zeal Scale.** Finally, participants reported their agreement to 19 items related to both personal and external control religious zeal from the Religious Zeal Scale (McGregor et al., 2010) using a scale from 1 (strongly disagree) to 5 (strongly agree) (see Appendix 8). Religious Zeal Scale items were entered into a principal components analysis with the expectation that they would reveal two factors. The first would focus on personal control religious zeal and be similar to those found in past research related to increased religious zeal following academic personal control threats among people with high personal control dispositions (McGregor et al., 2010) (items 1-5). The second factor would focus on external control religious zeal, specifically militant ingroup loyalty and obedient belief in god (items 6 through 19).

This categorization is consistent with research by Allport and Ross (1967) associating extrinsic religiosity with a desire for group membership, an external guide for action, status, and self-justification. Indeed, extrinsic religious orientation is associated with heightened prejudice and jingoism over intrinsic religious orientation (Allport & Ross, 1967).

## **Results and Discussion**

**Preliminary analyses.** The diverse sample included 4.4% Buddhists, 38.8% Christians, 8.8% Hindus, 1.9% Jews, 16.9% Muslims, 1.3% Sikhs, 5.0% who identified as “Other,” 3.1% did not know, 3.8% Agnostics, 8.8% Atheists, and 7.5% who declined to answer the question. The alpha reliability of the RSES and Promotion Focus scales were both .85. An independent samples t-test confirmed the economic external control threat ( $M= 3.74$ ,  $SD= .85$ ) and no threat control ( $M= 3.71$ ,  $SD= .93$ ) passages were equally well understood ( $M= 3.73$ ,  $SD= .89$ ),  $t(155)= .195$ ,  $p= .31$ .

Principal components analysis reflected our conceptualization of distinct personal and external control aspects of religious zeal. The 5 items related to personal control religious zeal,

but not the 14 items related to external control religious zeal loaded onto the first factor with loadings greater than .50. The first 12 of the 14 items associated with external control religious zeal, but not the five items related to personal control, had loadings greater than .50 (with one exception) on the second of two varimax-rotated factors with eigen values greater than one. The last 2 of the 14 items associated with external control religious zeal loaded above .50 on both personal and external control religious zeal varimax-rotated factors. Based on these findings, a Personal Control Religious Zeal subscale was created by averaging Religious Zeal items 1 through 5 and an External Control Religious Zeal subscale was created by averaging items 6 through 17. Items 18 and 19 were analyzed individually. Table 2 presents the principal component loadings of the factors. The alpha reliability of the Personal Control Religious Zeal subscale and External Control Religious Zeal subscale were .88 and .94, respectively.

**Main analyses.** In four analyses I regressed external control religious zeal and personal control religious zeal onto each of the two personal control disposition measures (centered at 1 standard deviation), economic external control threat (with threat coded as 0), and the individual Personal Control X Threat interaction term. The RSES X Threat interaction effect did not reach significance for personal control,  $\beta = -.04$ ,  $t(153) = -.36$ ,  $p = .72$ , or external control religious zeal,  $\beta = .04$ ,  $t(153) = .38$ ,  $p = .71$ . Exploratory analysis with all other personal control dispositional variables listed in Table 1 yielded similarly non-significant interaction effects. There was, however, a significant interaction effect of Promotion Focus X Threat on external control religious zeal,  $\beta = .38$ ,  $t(153) = 2.42$ ,  $p = .02$  (see Figure 1), and as predicted no significant effect on personal control religious zeal,  $\beta = .12$ ,  $t(153) = .76$ ,  $p = .45$ . Given the significant effects between Promotion Focus, Threat, and External Control Religious Zeal, and null effects with RSES and other personal control dispositional variables, the simple effects analysis focused solely on Pro-

motion Focus. The pertinent simple effects analysis revealed that among participants low in promotion focus, external control religious zeal was marginally higher in the economic external threat condition than no-threat condition,  $\beta = -.38$ ,  $t(153) = -1.78$ ,  $p = .08$ . Intriguingly, people high on promotion focus in contrast reacted to the external control threat with a marginally significant drop in external control religious zeal,  $\beta = .35$ ,  $t(153) = 1.65$ ,  $p = .10$ .

However, external control religious zeal and personal control religious zeal are conceptually similar and could be exhibited simultaneously. Indeed the two subscales were strongly correlated,  $r(157) = .72$ ,  $p < .001$ . To more stringently assess the impact of Threat and Promotion Focus on external control religious zeal, External Control Religious Zeal was first residualized onto Personal Control Religious Zeal. I then regressed the residualized term onto Promotion Focus (centered at 1 standard deviation), economic external control threat (with threat coded as 0), and the Promotion Focus X Threat interaction term. There was a significant interaction effect of Promotion Focus and Threat on the residual variable,  $\beta = .58$ ,  $t(153) = 2.71$ ,  $p = .008$ . The pertinent simple effects and slopes analysis indicate that: (a) in the threat condition, external control religious zeal was significantly higher among participants with low rather than high dispositional promotion focus,  $\beta = -.33$ ,  $t(153) = -2.17$ ,  $p = .03$ , and (b) among participants low in dispositional promotion focus, external control religious zeal was significantly higher in the threat condition than no-threat condition,  $\beta = -.33$ ,  $t(153) = -2.30$ ,  $p = .02$ .

Items 18 “I believe that a powerful God or Godlike force shapes human destiny,” and 19 “Most important events in our world are guided by, and to some extent controlled by, the will of God or a Godlike force,” were analyzed separately because they loaded equally onto the External Control Religious Zeal and Personal Control Religious Zeal factors and did not form their own factor. I regressed items 18 and 19 onto Promotion Focus (centered at 1 standard deviation), eco-

conomic external control threat (with threat coded as 0), and the Promotion Focus X Threat interaction term. There was a marginally significant interaction effect for Promotion X Threat interaction on item 18,  $\beta = .79$ ,  $t(153) = 1.84$ ,  $p = .07$ , and no significant interaction effect on item 19,  $\beta = .33$ ,  $t(153) = .09$ ,  $p = .44$ . The relevant simple effects analysis revealed that people low in dispositional promotion focus were more likely to believe that a God or a Godlike force shapes human destiny in the threat condition than no-threat condition,  $\beta = -.57$ ,  $t(153) = -1.98$ ,  $p = .05$ . Possible reasons for the null effect on item 19 will be discussed in the general discussion section.

These results are partially consistent with the hypothesis that people with at least some forms of low personal control dispositions turn to zealous religious commitments when provoked by threats to external sources of control. People with low promotion focus reported very little external control religious zeal in the no-threat condition. Only following threat to external sources of control did people with low promotion focus promote external control religious zeal. Further, they only endorsed extreme religious beliefs associated with loyal devotion to an external source of control, rather than fidelity with their own religious beliefs. In contrast, the economic external control threat actually decreased external control religious zeal for those with high personal control dispositions. These results are consistent with previous lines of research suggesting that people promote alternative external sources of control after a primary external source of control has been threatened and personal control is not available (Kay et al., 2009). Study 2 attempted to replicate this effect with a different manipulation of external control threat and measure of religious zeal.

## Study 2

For the different manipulation of external control threat participants were randomly assigned to either reflect on uncertainties surrounding an important close relationship or not. Two

dependent measures then assessed external religious zeal. First, participants rated the extent to which their personal goals in life were under control of God, fate, and other external sources of control. Second, they rated their belief in powerful and protective aspects of God on a 12-item scale. As in Study 1, I hypothesized that the external control threat (relationship uncertainty in Study 2) would heighten both measures of external religious control among participants who were dispositionally low on personal control. I also tried to experimentally manipulate personal control (see Appendix 11a and 11b), but the manipulation had no effects, and so the results reported below are collapsed across the experimentally manipulated high and low personal control prime conditions.

## **Method**

### **Participants and Design**

Two hundred and ninety-eight York University undergraduates (63.8% female,  $M_{\text{age}} = 2.75$ ,  $SD_{\text{age}} = 4.78$ ) participated in an online session for partial course credit toward their introductory psychology course. Participants completed trait measures of personal control, and were then randomly assigned to: (a) a high or low personal control prime conditions, and (b) a relationship uncertainty threat (the external control threat) or one of three different no-threat conditions. They then completed the two dependent measures assessing controlling and powerful God aspects of religious zeal.

### **Procedure**

After signing up to participate online in a study ostensibly about their opinions and personality, participants began by completing the same two dispositional personal control scales as in Study 1: the RSES (see Appendix 1) and Promotion Focus scale (see Appendix 6). Table 3 presents the intercorrelations of the personal control disposition measures, religious zeal depend-

ent measures, and all the other dispositional measures participants completed at the beginning of the study following the self-esteem and promotion focus scales.

**Control Prime.** Participants were randomly assigned to the low or high personal control prime conditions. The low personal control materials required participants to identify an experience in which they lacked control over a situation (see Appendix 11a). They then described the situation in detail and reflected on how it made them feel. The high personal control materials required participants to identify an experience in which they had complete control over the situation and then respond to similar prompts (see Appendix 11b).

**Relational External Control Threat.** Following Prentice and colleagues (2015) participants were next randomly assigned either to an external control threat (relationship uncertainty) or one of three no-threat conditions. In the relationship uncertainty threat condition (the external control threat) participants describe an uncertain personal relationship (from McGregor & Marigold, 2003; see also McGregor et al., 2005; McGregor et al., 2010) (see Appendix 12c). In the first no-threat condition participants described a friend's uncertain relationship (also from McGregor & Marigold, 2003; see Appendix 12d). In the second no-threat condition participants completed the same materials as in the relationship uncertainty threat condition, but then had a chance to relieve the uncertainty and regain interpretive control by making an external causal attribution (i.e., explaining why the relationship was troubled due to "external circumstance beyond your personal control;" from Prentice et al., 2015, see Appendix 12a). In the third no-threat condition participants completed the same materials as in the relationship uncertainty threat condition, but then had a chance to relieve the uncertainty and regain interpretive control by making an internal causal attribution (i.e., explaining why the relationship was troubled due to "a personal choice you made;" also from Prentice et al., 2015; see Appendix 12b).

The no-threat conditions involving making personal or external causal attributions towards a troubled relationship were originally designed to manipulate the extent to which the control threat was personal or external. However in the present research as well as Prentice and colleagues (2015) these conditions were behaved like no-threat conditions, as the clear attribution eliminates the uncertainty threat. Past research indicates that uncertainty is the threatening element of the relationship uncertainty threat, and so the clear attributions in no-threat conditions two and three should both restore interpretive control and relieve the uncertainty (McGregor et al., 2010). Indeed in recent research reminders that the world is random increased self-reported feelings of anxiety and personal performance monitoring, relative to reminders that the world is controlled and stable (Tullett, Kay, & Inzlicht, 2015).

**Religious external control of personal goals.** After the threat materials, participants listed three important personal goals (adapted from McGregor et al., 2010; McGregor & Little, 1998; McGregor et al., 2001). Common goals include the desire to improve fitness, achieve higher grades, or graduate. They then rated each goal on 27 dimensions associated with sources of personal control and control beyond personal agency using a scale from 1 (not at all) to 7 (extremely) (see Appendix 13). PPA dimensional averages were entered into a principal components analysis with the expectation that it would reveal an external control factor related to belief in God, fate, and unnamed external forces control.

**Powerful God Religious Zeal.** Finally, participants reported their agreement to 12 items related to religious zeal towards a powerful and protective god using a scale from 1 (strongly disagree) to 5 (strongly agree) (see Appendix 14). Religious zeal items were entered into a principal components analysis with the expectation that they would reveal one factor related to an omnipotent God.



## Results and Discussion

**Preliminary analyses.** The diverse sample included 1.9% Buddhists, 35.1% Christians, 4.9% Hindus, 2.3% Jews, 14.6% Muslims, 4.9% Sikhs, 7.1% who identified as “Other,” 4.5% did not know, 4.9% Agnostics, 5.5% Atheists, and 3.2% who declined to answer the question. The alpha reliability of the RSES and Promotion Focus scales were .85 and .83, respectively.

Principal components revealed four varimax-rotated PPA factors with eigen values greater than 1: randomness and god, helping others, personal control, and prevention focus. Table 4 presents the principal component loadings of the factors. Based on these findings, a PPA Randomness/External Control sub scale was created by averaging the chance, randomness, no control, fate, God, and external causes items, with an alpha reliability of .85. A PPA Helping Others sub scale was created by averaging the authority, help, and others items, with an alpha reliability of .91. A PPA Personal Control sub scale was created by averaging the effort, success, personal control, approach, promotion, determination, outcome, competence, value-congruence, conviction, self-identity, ideals, and personal choice items, with an alpha reliability of .95. Lastly, a PPA Prevention Focus sub scale was created by averaging items avoid, prevention, and should, with an alpha reliability of .84.

Principal components analysis of the powerful and protective God dependent measure revealed a single religious zeal factor reflecting belief in a powerful God. All 12 items had loadings greater than .50 on the single factor with a eigen value greater than one. Based on these findings, a Powerful Religious Zeal God scale was created by averaging the religious items. Table 5 presents the principal component loadings of the factor. The alpha reliability of the Powerful God scale was .98.

As in Study 1, results involving RSES and all other personal control dispositional measures as the dispositional measure were null except Promotion Focus. The experimental manipulation of high vs. low control had no significant or marginal first-order, second-order, or third-order effects on either measure of external religious control. The three no-threat conditions yielded similar results and were accordingly collapsed into one no-threat condition to be compared to the threat condition. Possible reasons for these null effects will be discussed in the general discussion section.

**Main analyses.** For the main analyses, I regressed Powerful God Religious Zeal on mean-centered Promotion Focus as the personal control disposition measure, Threat (with threat coded as 0), and the Promotion Focus X Threat interaction term. Similar to Study 1 results revealed a significant interaction on Powerful God Religious Zeal<sup>3</sup>,  $\beta = .73$ ,  $t(296) = 2.08$ ,  $p = .04$  (see Figure 2). The pertinent simple effects analysis revealed among participants low in promotion focus, belief in a powerful God was marginally higher in the threat condition than no-threat control conditions,  $\beta = -.40$ ,  $t(296) = -1.67$ ,  $p = .09$ .

I next regressed mean-centered Promotion Focus as the personal control disposition measure, Threat (with threat coded as 0), and the Promotion Focus X Threat interaction term onto PPA Prevention Focus, PPA Personal Control, PPA Helping Others, PPA Randomness/God, and Powerful God Religious Zeal. There were no significant interaction effects with any of the dependent variables.

To assess whether the PPA randomness, chance, and no control items muted the effect of the PPA God, fate, and external causes items, I regressed mean-centered Promotion Focus and Threat (with threat coded as 0) onto each of the PPA God, fate, and external forces items. There were no significant interaction effects on any of the items.

These results further support the hypothesis that people with at least some forms of low personal control dispositions rely on powerful and controlling aspects of God when other external sources of control falter. Only following threat to a relational external source of control, where the threat was unidentified and uncertain, did participants with low promotion focus endorse powerful and protective aspects of God. These results are again consistent with previous lines of research suggesting that people will promote alternative external sources of control when external control are constrained.

### **General Discussion**

This research explored the nature of religious zeal amongst persons with low personal control dispositions. Anchored in Kay and colleagues' (2009) Compensatory Control Theory, the present research tested the hypothesis that religious zeal should be particularly attractive to people with at least some forms of low personal control dispositions after external control threats.

Across two studies I measured dispositional personal control and exposed participants to external control threatening or non-threatening manipulations. Past research has shown participants often respond to source of control threat by pursuing alternative sources of control, particularly religious belief (Kay et al., 2009; McGregor et al., 2010). The dependent measures thus assessed religious devotion to god and the belief system.

In Study 1, only participants low in promotion focus and imbued with perceptions of a volatile economic climate promoted external control religious zeal, in contrast to those high in promotion focus or those led to believe in economic stability. Further they heightened religious devotion to God and the religious group, but not personal religious ideals. Study 2 illustrated these effects were not limited to economic external control threats. Participants with low promo-

tion focus reminded of a faltering relational external source of control believed more in a god conferring a sense of power and security.

Together with past research on religious zeal, the present research helps explain the power of religion. People with high personal control dispositions are attracted to compensatory religion because it can be used to empower personal volition when alternative sources of control are frustrated (McGregor et al., 2010). Similarly, people with at least some forms of low personal control dispositions are attracted to compensatory religion because it can provide external sources of control and authority when alternative external sources seem uncertain.

### **Implications for Religiosity**

These findings are consistent with research by Allport and Ross (1967) positing intrinsic and extrinsic forms of religiosity. People with high personal control dispositions may seek out more intrinsic religion to drive personal beliefs and ideals while people with low personal control dispositions may pursue more extrinsic religiosity for a sense that things are control, group membership, and external guidance for actions (Allport & Ross, 1967). People with high personal control dispositions rely on personal control to provide a sense that the world is controlled and not random. They are able to fully embrace and adhere to their religious ideals without needing to anchor their devotion in theistic or intergroup authority. People with low personal control dispositions instead rely on external systems to assuage notions that the world is chaotic and unpredictable, and use religion to provide security, status, and self-justification. Indeed, past research has found that those with an extrinsic religious orientation are significantly more prejudiced (vs. those with an intrinsic religious orientation; Allport & Ross, 1967).

### **Implications for Religious Extremism**

The present research suggests that people with low personal control dispositions may be especially attracted to violent antisocial religious extremes when their political system or economy falters. Emerging evidence however illustrates the prosocial nature of religiosity. For example, in some experiments, participants were more charitable to anonymous strangers when God concepts were implicitly primed (Shariff & Norenzayan, 2007). In others, religious participants were more charitable than non-religious participants, but only on their day of worship (Malhotra, 2010). In still others, religiosity was positively associated with volunteerism among college students (Bernt, 1989).

This mixed evidence implies that terrorists such as Michael Zehaf-Bibeau, who fatally shot a federal police agent at the Canadian parliaments on October 22, 2014, may be as likely to devote their lives to volunteerism and charity as they are to antisocial extremes. What enables religion to flexibly elicit both prosocial and antisocial behavior? Recent research indicates that people will endorse whichever norms are most salient following control threat. In a series of studies, death-related personal control threat incensed pacifist attitudes following a pacifist prime (Study 2), helpfulness following a helpful prime (Study 4), and harsher sentences for an illegal sex worker following a conservatism prime (Study 3; Jonas et al., 2008).

These results and theorizing highlight important opportunities for religious extremism intervention. While eliminating personal and external control threats is improbable, increasing exposure to prosocial religiosity and reducing exposure to antisocial aspects of religiosity may increase the likelihood people turn to prosocial religious attitudes and behaviors when the systems of control they have come to rely on for support and guidance are threatened.

For example, in 2014 ISIS was responsible for radicalizing and recruiting more than 12 000 foreigners to Syria and Iraq to their antisocial agenda largely through slick online cam-

paings. Employing well-produced videos, English-language magazines, mobile applications and social media sites including Instagram, Facebook, and Twitter, online media transmission affords anonymity, exposure to millions of users, and quick and low barrier publication.

To counter these efforts, national anti-radicalization programs should focus on promoting prosocial religious goals rather than trying to suppress religion or simply detaining or revoking passports of suspected terrorists (which may further undermine their sense of system fairness and external control). The present research has demonstrated how people with at least some forms of low personal control adhere to external sources of control. Religious leaders emphasizing altruistic peaceful ideals can be an attractive alternative to antisocial jihadist messages. For example, the UK's Prevent de-radicalization program invites traditional Islamic scholars to educate and openly discuss religion, radicalization, terrorism, and foreign affairs with young Muslim audiences (Vidino & Brandon, 2012). Even Muslim leaders themselves have recently called for a revolution of understanding within their own religion that would make antisocial interpretations more difficult ([http://unitedwithisrael.org/egypts-al-sisi-calls-for-renewed-vision-of-islam/?ios\\_app=true](http://unitedwithisrael.org/egypts-al-sisi-calls-for-renewed-vision-of-islam/?ios_app=true))

### **Limitations and Future Directions**

To the author's knowledge, the present research is the first to demonstrate the effects of external control threat and at least some forms of low personal control on enhanced religious zeal. However, some limitations of the present studies indicate opportunities for future research. Firstly, while past research has demonstrated multiple forms of high personal control dispositions moderate the relationship between personal control threat and religious zeal (e.g., BAS Drive, Action Orientation, and Self-Esteem; McGregor et al., 2010), the present studies only found moderation with promotion focus. This may be because promotion focus more closely

embodies personal control. Recent research explicitly associates personal control with promotion-focused motivational strategies centered on pursuing and achieving positive outcomes (Hamamura & Heine, 2008; McGregor et al., 2007).

Secondly, although I hypothesized that among people with low personal control dispositions external control threat would increase religious zeal related to external control, scores on Study 1's item 18, "I believe that a powerful God or Godlike force shapes human destiny," and not item 19, "Most important events in our world are guided by, and to some extent controlled by, the will of God or a Godlike force," increased among low promotion focus participants following threat. I theorize that people with at least some forms of low personal control dispositions find believing a God or Godlike force willed important and catastrophic world events threatening. While believing God or a Godlike force has positively moulded your life provides sanguine comfort, proposing God (and not Satan) willed the Ebola outbreak could be anxiogenic. Future studies could benefit from framing the valence of the willed world event.

Thirdly, although I hypothesized people with at least some forms of low personal control dispositions would be more likely to attribute success of their goals to fate, God, or other external causes, this was found not to be the case. People with low promotion focus may rely so little on their own personal volition that they place little importance on their own personal goals. Assessing belief in external control forces through personal projects may be ineffective for people with low personal control dispositions.

Lastly, as discussed above, recent research demonstrates that following personal control threat participants will endorse whichever norms are most salient. In the present Study 1, many of the External Control Religious Zeal items could be construed as antisocial. Future research

would benefit from using prosocial religious primes as well as prosocial religious zeal dependent measures.

### **Conclusion**

The present research provides partial support for the hypothesis that people with at least some forms of low personal control dispositions can endorse some aspects of radical religious zeal as vehemently as people with high personal control dispositions, when faced with external control threats. These findings support the Compensatory Control Theory (Kay et al., 2009) view that people with low personal control dispositions adhere to alternative external sources of control when an external source of control they come to rely on for support and guidance is threatened. Belief in a controlling God or belief system provides reassurance that good and bad life events do not occur by chance.



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## Footnotes

<sup>1</sup> These results further differentiate from previous studies because the threat manipulation involved one threat condition and collapsed across three no-threat conditions. To ensure the results were not the product of additional no-threat conditions, I conducted supplementary analysis using only the original threat and no-threat conditions from McGregor and Marigold (2003; see also McGregor et al., 2005; McGregor et al., 2010). I regressed Threat (with threat coded as 0), mean-centered Promotion Focus, and the interaction term onto Powerful God Religious Zeal, again revealing a marginally significant interaction,  $\beta = .76$ ,  $t(147) = 1.82$ ,  $p = .07$ .

<sup>2</sup> Interaction effects involving external control religious zeal were stronger when Muslims were excluded from the analysis,  $\beta = .89$ ,  $t(126) = 2.64$ ,  $p = .009$ . The simple slopes and effects reveal that: (a) that among non-Muslim participants with low promotion focus dispositions, external control religious zeal was higher in the economic external control threat than no-threat condition,  $\beta = -.46$ ,  $t(126) = -2.08$ ,  $p = .04$ , and (b) in the economic external control threat condition, external control religious zeal was marginally higher among non-Muslim participants with low promotion focus dispositions than high promotion focus dispositions,  $\beta = -.47$ ,  $t(126) = -1.86$ ,  $p = .06$ . The results were also stronger when the analysis focussed solely on Christians,  $\beta = 1.50$ ,  $t(158) = 3.01$ ,  $p = .004$ . The simple slopes and effects analysis reveal that: (a) among Christian participants with low promotion focus dispositions, external control religious zeal was higher in the economic external control threat than no-threat condition,  $\beta = -.80$ ,  $t(58) = -2.52$ ,  $p = .015$ , and (b) in the economic external control threat condition, external control religious zeal was higher among Christian participants with low than high promotion focus dispositions,  $\beta = -1.29$ ,

$t(58) = -3.17, p = .002$ . There was also a significant interaction effect for Christian participants on personal control religious zeal,  $\beta = 1.09, t(58) = 2.67, p = .01$ . The simple slopes and effects analysis reveal that: (a) among Christian participants with low promotion focus dispositions, personal control religious zeal was higher in the threat than no threat condition,  $\beta = -.55, t(58) = -2.10, p = .04$ , (b) in the threat condition, personal control religious zeal was higher among Christian participants with low than high promotion focus dispositions,  $\beta = -.70, t(58) = -2.11, p = .04$ , and (c) among Christian participants with high promotion focus dispositions, personal control religious zeal was higher in the no-threat than threat condition,  $\beta = .50, t(58) = 1.96, p = .05$ . Lastly, removing Agnostics and Atheists also increased the strength of the results,  $\beta = .78, t(133) = 2.42, p = .02$ . The simple slopes and effects analysis reveal that among non-Atheist and non-Agnostic participants with low promotion focus dispositions, external control religious zeal was marginally higher in the threat than no threat condition,  $\beta = -.40, t(133) = -1.79, p = .08$ .

<sup>3</sup> Similar to Study 1, interaction effects were stronger when Muslims were excluded from the analysis,  $\beta = .82, t(253) = 2.19, p = .03$ . However the simple effects and slopes were null. Intriguingly, the interaction effects were null when the analysis excluded Atheists and Agnostic, as well as when it focussed solely on Christians.

Appendix 1  
Rosenberg Self-Esteem Scale (RSES) from Rosenberg (1965)

Please answer the following items as truthfully as possible.

Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree
1	2	3	4	5

1. I feel that I'm a person of worth, at least on an equal basis with others.
2. I feel that I have a number of good qualities.
3. All in all, I am inclined to feel that I am a failure.
4. I am able to do things as well as most other people.
5. I feel I do not have much to be proud of.
6. I take a positive attitude toward myself.
7. On the whole, I am satisfied with myself.
8. I wish I could have more respect for myself.
9. I certainly feel useless at times.
10. At times I think I am no good at all.

Appendix 2  
Multidimensional Scale of Perceived Social Support (SPSS) from Zimet, Dahlem, Zimet & Farley (1988)

Please answer the following items as truthfully as possible.

Strongly disagree	Disagree	Slightly disagree	Neither agree nor disagree	Slightly agree	Agree	Strongly agree
1	2	3	4	5	6	7

1. There is a special person who is around when I am in need.
2. There is a special person with whom I can share my joys and sorrows.
3. My family really tries to help me.
4. I get the emotional help and support I need from my family.
5. I have a special person who is a real source of comfort to me.
6. My friends really try to help me.
7. I can count on my friends when things go wrong.
8. I can talk about my problems with my family.
9. I have friends with whom I can share my joys and sorrows.
10. There is a special person in my life who cares about my feelings.
11. My family is willing to help me make decisions.
12. I can talk about my problems with my family.

Appendix 3  
Behavioral Inhibition & Behavioral Activation (BIS/BAS) from Carver & White (1994)

Please answer the following items as truthfully as possible.

Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree
1	2	3	4	5

1. A person's family is the most important thing in life.
2. Even if something bad is about to happen to me, I rarely experience fear or nervousness.
3. I go out of my way to get things I want.
4. When I'm doing well at something I love to keep at it.
5. I'm always willing to try something new if I think it will be fun.
6. How I dress is important to me.
7. When I get something I want, I feel excited and energized.
8. Criticism or scolding hurts me quite a bit.
9. When I want something I usually go all-out to get it.
1. I will often do things for no other reason than that they might be fun.
11. It's hard for me to find the time to do things such as get a haircut.
12. If I see a chance to get something I want I move on it right away.
13. I feel pretty worried or upset when I think or know somebody is angry at me.
14. When I see an opportunity for something I like I get excited right away.
15. I often act on the spur of the moment.
16. If I think something unpleasant is going to happen I usually get pretty "worked up."
17. I often wonder why people act the way they do.
18. When good things happen to me, it affects me strongly.
19. I feel worried when I think I have done poorly at something important.
2. I crave excitement and new sensations.
21. When I go after something I use a "no holds barred" approach.
22. I have very few fears compared to my friends.
23. It would excite me to win a contest.
24. I worry about making mistakes.

BAS Drive: 3, 9, 12, 21

BAS Fun Seeking: 5, 10, 15, 20

BAS Reward Responsiveness: 4, 7, 14, 18, 23

BIS: 2, 8, 13, 16, 19, 22, 24

Appendix 4  
Rumination-Reflection Questionnaire from Trapnell & Campbell (1999)

Please answer the following items as truthfully as possible.

Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree
1	2	3	4	5

1. My attention is often focused on aspects of myself I wish I'd stop thinking about.
2. I always seem to be rehashing in my mind recent things I've said or done.
3. Sometimes it is hard for me to shut off thoughts about myself.
4. Long after an argument or disagreement is over with, my thoughts keep going back to what happened.
5. I tend to "ruminate" or dwell over things that happen to me for a really long time afterward.
6. I don't waste time rethinking things that are over and done with.
7. Often I'm playing back over in my mind how I acted in a past situation.
8. I often find myself reevaluating something I've done.
9. I never ruminate or dwell on myself for very long.
10. It is easy for me to put unwanted thoughts out of my mind.
11. I often reflect on episodes in my life that I should no longer concern myself with.
12. I spend a great deal of time thinking back over my embarrassing or disappointing moments.

Appendix 5  
Emotional Uncertainty subscale from Greco & Roger (2001)

Please answer the following items as truthfully as possible.

Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree
1	2	3	4	5

1. I feel anxious when things are changing.
2. I get worried when a situation is uncertain.
3. Uncertainty frightens me.
4. When uncertain about what to do next, I tend to feel lost.
5. When I can't clearly discern situations, I get apprehensive.
6. Facing uncertainty is a nerve wracking experience.
7. When making a decision, I am deterred by the fear of making a mistake.
8. Sudden changes make me feel upset.
9. Thinking about uncertainty makes me feel depressed.
10. I am hesitant when it comes to making changes.
11. I really get anxious if don't know what someone thinks about me.
12. When I'm not certain about someone's intentions towards me, I often become upset or angry.
13. When the future is uncertain, I generally expect the worst to happen.
14. When a situation is unclear, it makes me feel angry.
15. I tend to give up easily when I don't clearly understand a situation.



Appendix 6  
Regulatory Focus Scale from Lockwood et al. (2002)

Please answer the following items as truthfully as possible.

Not at all true of me	Somewhat untrue of me	Somewhat true of me	Very true of me
1	2	3	4

1. I am focused on preventing negative events in my life.
2. I am anxious that I will fall short of my responsibilities and obligations.
3. I imagine how I will achieve my hopes and aspirations.
4. I think about the person I am afraid I might become in the future.
5. I think about the person I would ideally like to be in the future.
6. I typically focus on the success I hope to achieve in the future.
7. I worry that I will fail to accomplish my academic goals.
8. I think about how I will achieve academic success.
9. I imagine myself experiencing bad things that I fear might happen to me.
10. I think about how I can prevent failures in my life.
11. I am more oriented toward preventing losses than I am toward achieving gains.
12. My major goal in school right now is to achieve my academic ambitions.
13. My major goal in school right now is to avoid becoming an academic failure.
14. I see myself as someone who is primarily striving to reach my "ideal self"- to fulfill my hopes, wishes, and aspirations.
15. I see myself as someone who is primarily striving to become the self I "ought" to be- to fulfill my duties, responsibilities, and obligations.
16. I am focused on achieving positive outcomes in my life.
17. I imagine myself experiencing good things that I hope will happen to me.
18. Overall, I am more oriented toward achieving success than preventing failure.

Promotion Focus: 3, 5, 6, 8, 12, 14, 16, 17, 18

Prevention Focus: 1, 2, 4, 7, 9, 10, 11, 13, 15

Appendix 7a  
Economic External Control Threat

Please take the next 90 seconds to read the following. We are interested in how well you understand the passage.

A high profile report released by leading economists at Stanford and Harvard Universities paints an unsettling economic picture for young North Americans. The report argues that although the North American economies may seem to be recovering from the 2009 economic crisis, there are ominous indicators that this false recovery will soon give way to economic collapse as never seen before. In 2009 politicians worried that banks would go bankrupt. Now they worry that entire countries may go bankrupt (Greece is already teetering near the brink of collapse). Businesses are cutting risky corners to stay competitive. The BP oil spill in the Gulf of Mexico is a symptom of the reckless short cuts global business leaders are making in order to continue earning profits. The G20 countries' recent agreement to slash their deficits may actually increase risk of another global economic meltdown and increase the already staggering unemployment levels for young North Americans. In sum, the report projects a prolonged downturn in North America, and that Canada may be particularly hard hit because its economy is based on resource industries (e.g., lumber, oil, nickel) that are the first casualties in depressions. People entering the job market for the first time will face a very uncertain path. The report concludes that "If a depression were to occur, then in addition to widespread unemployment, even basic necessities like food, shelter, gasoline, and medical supplies could become difficult to secure".

1. On the scale provided, please indicate how well you understood the passage.

Very poorly	Poorly	Neutral	Well	Very well
1	2	3	4	5

Appendix 7b  
Economic No-Threat

Please take the next 90 seconds to read the following. We are interested in how well you understand the passage.

A high profile report released by leading economists at Stanford and Harvard Universities paints a reassuring economic picture for young North Americans. The report argues that the North American economies are recovering from the 2009 economic crisis and that there are indicators that this recovery will be stable. In 2009 politicians worried that banks would go bankrupt, but new regulations similar to those already in place in countries like Canada have now attenuated that risk. Businesses benefited from the recent downturn by becoming more competitive, and this will continue to pay economic dividends over the next 10 years. Global business leaders are once again earning profits. The G20 countries' recent agreement to slash their deficits will improve global economic conditions by stimulating the economy and creating jobs for young North Americans. In sum, the report projects economic stability in North America, and that Canada is well positioned because its economy is based on resource industries (e.g., lumber, oil, nickel) that are in demand during such periods of stability. People entering the job market for the first time will have employment opportunities. The report concludes that "In addition to the adequate levels of employment that will occur as a result of the predicted stability, prices of basic necessities like food, shelter, gasoline and medical supplies will remain affordable."

1. On the scale provided, please indicate how well you understood the passage.

Very poorly	Poorly	Neutral	Well	Very well
1	2	3	4	5

Appendix 8  
Religious Zeal Scale from McGregor et al., (2010)

The following questions are about you and your beliefs. We are interested in understanding the relation between your unique attitudes, personality and beliefs. Please remember to answer as accurately as possible.

Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree
1	2	3	4	5

1. I am confident in my religious beliefs.
2. I aspire to live and act according to my religious beliefs.
3. My religious beliefs are grounded in objective truth.
4. Most people would agree with my religious beliefs if they took the time to understand it rather than just relying on stereotypes about it.
5. I would support a war that defended my religious beliefs.
6. If I really had to, I would give my life for my religious beliefs.
7. In my heart I believe that my religious beliefs are more correct than others.
8. It is wise to keep a wary distance from people who distract me from living according to my religious beliefs.
9. In the end, those who oppress my religious beliefs will suffer for their ignorance.
10. If everyone followed my religious beliefs, the world would be a much better place.
11. Harmful misinformation is too often spread about my religious beliefs by ignorant people.
12. If necessary, I would endure much pain and suffering to stay true to my religious beliefs.
13. I will do whatever is necessary to help my religious beliefs prosper in society.
14. If I was sincerely convinced that God wanted me to do something extreme, I would do it.
15. Today's society is in desperate need of the wisdom of my religious beliefs.
16. My strongest relationships are with those who have the same religious beliefs as I do.
17. If my religious beliefs were being publicly criticized I would argue to defend them.
18. I believe that a powerful God or Godlike force shapes human destiny.
19. Most important events in our world are guided by, and to some extent controlled by, the will of God or a Godlike force.

Appendix 9  
Meaning in Life Questionnaire (MLQ) from Steger et al. (2006)

Please answer the following as truthfully as possible.

Strongly disagree	Disagree	Slightly disagree	Neither agree nor disagree	Slightly agree	Agree	Strongly agree
1	2	3	4	5	6	7

1. I understand my life's meaning.
2. I am looking for something that makes my life feel meaningful.
3. I am always looking to find my life's purpose.
4. My life has a clear sense of purpose.
5. I have a good sense of what makes my life meaningful.
6. I have discovered a satisfying life purpose.
7. I am always searching for something that makes my life feel significant.
8. I am seeking a purpose or mission for my life.
9. My life has no clear purpose.
10. I am searching for meaning in my life.

Presence of Meaning: 1, 4, 5, 6, 9

Search for Meaning: 2, 3, 7, 8, 10

Appendix 10  
Action-State Orientation (ASO) Scale from Kuhl & Beckmann (1994)

The following statements describe situations which you may encounter in your daily life. Please read each statement and select the response option which best describes how you act when faced with these situations.

1. When I have lost something that is very valuable to me and I can't find it anywhere:
  - a) I have a hard time concentrating on something else
  - b) I put it out of my mind after a little while
2. When I know I must finish something soon:
  - a) I have to push myself to get started
  - b) I find it easy to get it done and over with
3. When I have to solve a difficult problem:
  - a) It takes me a long time to adjust myself to it
  - b) It bothers me for a while, but then I don't think about it anymore
4. When I don't have anything in particular to do and I am getting bored:
  - a) I have trouble getting up enough energy to do anything at all
  - b) I quickly find something to do
5. When I'm in a competition and have lost every time:
  - a) I can soon put losing out of my mind
  - b) The thought that I lost keeps running through my mind
6. When I am getting ready to tackle a difficult problem:
  - a) It feels like I am facing a big mountain that I don't think I can climb
  - b) I look for a way that the problem can be approached in a suitable manner
7. If I had just bought a new piece of equipment (for example, an iPod) and it accidentally fell on the floor and was damaged beyond repair:
  - a) I would manage to get over it quickly
  - b) It would take me a long time to get over it
8. When I have to solve a difficult problem:
  - a) I usually don't have a problem getting started on it
  - b) I have trouble sorting out things in my head so that I can get down to working on the problem
9. If I have to talk to someone about something important and, repeatedly, can't find her/him at home:
  - a) I can't stop thinking about it, even while I'm doing something else
  - b) I easily forget about it until I can see the person again

10. When I have to make up my mind about what I am going to do when I get some unexpected free time:
  - a) It takes me a long time to decide what I should do during this free time
  - b) I can usually decide on something to do without having to think it over very much
11. When I've bought a lot of stuff at a store and realize when I get home that I paid too much -- but I can't get my money back:
  - a) I can't concentrate on anything else
  - b) I easily forget about it
12. When I have work to do at home:
  - a) It is often hard for me to get the work done
  - b) I usually get it done right away
13. When I am told that my work has been completely unsatisfactory:
  - a) I don't let it bother me for too long
  - b) I feel paralyzed
14. When I have a lot of important things to do and they must all be done soon:
  - a) I often don't know where to begin
  - b) I find it easy to make a plan and stick with it
15. If I'm stuck in traffic and miss an important appointment:
  - a) At first, it's difficult for me to start doing anything else at all
  - b) I quickly forget about it and do something else
16. When there are two things that I really want to do, but I can't do both of them:
  - a) I quickly begin one thing and forget about the other thing I couldn't do.
  - b) It's not easy for me to put the thing that I couldn't do out of my mind
17. When something is very important to me, but I can't seem to get it right:
  - a) I gradually lose heart
  - b) I just forget about it and go do something else
18. When I have to take care of something important but which is also unpleasant:
  - a) I do it and get it over with
  - b) It can take a while before I can bring myself to do it
19. When something really gets me down:
  - a) I have trouble doing anything at all
  - b) I find it easy to distract myself by doing other things
20. When I am facing a big project that has to be done:
  - a) I often spend too long thinking about where I should begin
  - b) I don't have any problems getting started

21. When several things go wrong on the same day:
  - a) I usually don't know how to deal with it
  - b) I just keep on going as though nothing had happened
22. When I have a boring assignment:
  - a) I usually don't have any problem getting through it
  - b) I sometimes just can't get moving on it
23. When I have put all my effort into doing a really good job on something and the whole thing doesn't work out:
  - a) I don't have too much difficulty starting something else
  - b) I have trouble doing anything else at all
24. When I have an obligation to do something that is boring and uninteresting:
  - a) I do it quickly and get it over with
  - b) It usually takes a while before I get around to doing it



Appendix 11a  
Low Personal Control Prime

In this section, we would like you to recall a particular incident in your life in which something happened and you did not have any control over the situation.

1. Now, with it firmly in your mind, please briefly describe the situation where you felt you completely lacked control.
  
2. As you continue to think about the situation, now please take about 2 minutes to describe how you felt in that situation where you completely lacked control.

Appendix 11b  
High Personal Control Prime

In this section, we would like you to recall a particular incident in your life in which something happened and you felt in complete control over the situation.

1. Now, with it firmly in your mind, please briefly describe the situation where you felt in complete control.
2. As you continue to think about the situation, now please take about 2 minutes to describe how you felt in that situation where you had complete control.

Appendix 12a  
Relational External Control Threat - External Cause

In this section, think about a close relationship (family member, friend, or romantic partner) that is currently not going very well because of external circumstance beyond your personal control.

For example, you may be fighting a lot lately, or not talking as much as you used to. You are uncertain as to whether you will be able to continue to be as close to this person in the future.

1. Who is this person? (friend, family member, intimate partner)

Continue to think about the close relationship (family member, friend, or romantic partner) that is currently not going very well because of external circumstance beyond your personal control.

2. Now, describe the kinds of problems and difficulties you are having with this person. Please spend about two minutes on this task:

Continue to think about the close relationship (family member, friend, or romantic partner) that is currently not going very well because of external circumstance beyond your personal control.

3. Now, describe your thoughts and feelings regarding the possibility of this relationship continuing to go poorly or perhaps even getting worse. Again, spend about two minutes on this task.

Appendix 12b  
Relational External Control Threat - Personal Cause

In this section, think about a close relationship (family member, friend, or romantic partner) that is currently not going very well because of a personal choice you made.

For example, you may be fighting a lot lately, or not talking as much as you used to. You are uncertain as to whether you will be able to continue to be as close to this person in the future.

1. Who is this person? (friend, family member, intimate partner)

Continue to think about the close relationship (family member, friend, or romantic partner) that is currently not going very well because of a personal choice you made.

2. Now, describe the kinds of problems and difficulties you are having with this person. Please spend about two minutes on this task:

Continue to think about the close relationship (family member, friend, or romantic partner) that is currently not going very well because of a personal choice you made.

3. Now, describe your thoughts and feelings regarding the possibility of this relationship continuing to go poorly or perhaps even getting worse. Again, spend about two minutes on this task.

Appendix 12c  
Relational External Control Threat - Unidentified Cause

In this section, think about a close relationship (family member, friend, or romantic partner) that is currently not going very well.

For example, you may be fighting a lot lately, or not talking as much as you used to. You are uncertain as to whether you will be able to continue to be as close to this person in the future.

1. Who is this person? (friend, family member, intimate partner)

Continue to think about the close relationship (family member, friend, or romantic partner) that is currently not going very well.

2. Now, describe the kinds of problems and difficulties you are having with this person. Please spend about two minutes on this task:

Continue to think about the close relationship (family member, friend, or romantic partner) that is currently not going very well.

3. Now, describe your thoughts and feelings regarding the possibility of this relationship continuing to go poorly or perhaps even getting worse. Again, spend about two minutes on this task.

Appendix 12d  
Friend Threat Control

In this section, think about a friend's close relationship (family member, friend, or romantic partner) that is currently not going very well.

For example, they may be fighting a lot lately, or not talking as much as they used to. They are uncertain as to whether they will be able to continue to be as close to this person in the future.

1. Who is this person to your friend? (friend, family member, intimate partner)

Continue to think about your friend's close relationship (family member, friend, or romantic partner) that is currently not going very well.

2. Now, describe the kinds of problems and difficulties your friend is having with this person.  
Please spend about two minutes on this task:

Continue to think about your friend's close relationship (family member, friend, or romantic partner) that is currently not going very well.

3. Now, describe your friend's potential thoughts and feelings regarding the possibility of this relationship continuing to go poorly or perhaps even getting worse. Again, spend about two minutes on this task.

Appendix 13  
Personal Projects Assessment from McGregor et al., (2010)

Now, we are interested in your personal goals. Most of us have a number of projects at any given time that we think about, plan for, and try to accomplish.

Here are some examples of such projects that people have listed in the past: try to be physically attractive; seek new and exciting experiences; try to avoid being noticed by others; earn as much money as possible; get A's in all my courses; help Gary get along better with others; make my parents proud of me; try to stop fighting in my relationship; clarify my religious beliefs; avoid being dependent on my boyfriend; try to avoid putting on weight; help and be kind to people; stay on top of house chores.

On the next few screens, you will enter the 3 goals that are most characteristic of you at present.

1. First, please enter all 3 goals in the space provided. You will be asked for these goals again, so please remember them (i.e. write them down somewhere).

2. For this section, please enter the FIRST goal in the space provided.

3. Now, rate your goal on the following dimensions using the scale provided below:

Not at all	Very slightly	A little bit	Moderately	Quite a bit	Very much	Extremely
1	2	3	4	5	6	7

0.

- a) Chance: The outcome of this project essentially up to chance.
- b) Random: The outcome of this project will ultimately depend on random factors.
- c) No Control: Is it really beyond anyone's control how this project turns out.
- d) Authority: There is some person, agency, or authority I can turn to for help if I need it.
- e) Help: There is help available to me for dealing with this project.
- f) Others: There are other people or agencies who can help me manage this problem.
- g) Fate: This project will ultimately be successful if it is meant to be and there's really not much anyone can do about that.
- h) God: Only God knows whether or not this project is meant to succeed.
- i) External Causes: Causal factors beyond anyone's control will determine whether or not this project succeeds.
- j) Effort: Success will depend on how hard I work.
- k) Success: Success at this project is ultimately up to me.
- l) Personal Control: I am personally in control of how well this project goes.

- m) Approach: To what extent does it focus on approaching something positive?
- n) Promotion: To what extent does it focus on promotion of good things that you have high hopes for?
- o) Determination: How firmly determined are you to complete it, even if it requires sacrifices?
- p) Outcome: How likely are you to ultimately succeed at it?
- q) Competence: To what extent do you feel competent and able to pursue it?
- r) Value-Congruence: To what extent does it reflect the most important values that guide your life?
- s) Conviction: How certain do you feel that this is a project that you want to devote yourself to?
- t) Self-Identity: To what extent does it reflect the kind of person you really are, at your core?
- u) Conviction: To what extent does it feel like something you truly and ideally want to be doing, regardless of what you feel you should be doing?
- v) Personal Choice: To what extent did you choose it, i.e., not dictated to you by other people or circumstances?
- w) Avoid: To what extent does it focus on avoiding something negative?
- x) Prevention: To what extent does it focus on preventing bad things from happening?
- y) Should: To what extent does it feel like something that you SHOULD be doing regardless of what you would ideally like to be doing?
- z) Togetherness: To what extent are you doing it to feel close to other people?
- aa) Work: To what extent is it focused on accomplishing goals at school or work?



4. For this section, please enter the SECOND goal in the space provided.

5. Now, rate your goal on the following dimensions using the scale provided below:

Not at all	Very slightly	A little bit	Moderately	Quite a bit	Very much	Extremely
1	2	3	4	5	6	7

0.

- a) Chance: The outcome of this project essentially up to chance.
- b) Random: The outcome of this project will ultimately depend on random factors.
- c) No Control: Is it really beyond anyone's control how this project turns out.
- d) Authority: There is some person, agency, or authority I can turn to for help if I need it.
- e) Help: There is help available to me for dealing with this project.
- f) Others: There are other people or agencies who can help me manage this problem.
- g) Fate: This project will ultimately be successful if it is meant to be and there's really not much anyone can do about that.
- h) God: Only God knows whether or not this project is meant to succeed.
- i) External Causes: Causal factors beyond anyone's control will determine whether or not this project succeeds.
- j) Effort: Success will depend on how hard I work.
- k) Success: Success at this project is ultimately up to me.
- l) Personal Control: I am personally in control of how well this project goes.
- m) Approach: To what extent does it focus on approaching something positive?
- n) Promotion: To what extent does it focus on promotion of good things that you have high hopes for?
- o) Determination: How firmly determined are you to complete it, even if it requires sacrifices?
- p) Outcome: How likely are you to ultimately succeed at it?
- q) Competence: To what extent do you feel competent and able to pursue it?
- r) Value-Congruence: To what extent does it reflect the most important values that guide your life?
- s) Conviction: How certain do you feel that this is a project that you want to devote yourself to?
- t) Self-Identity: To what extent does it reflect the kind of person you really are, at your core?
- u) Conviction: To what extent does it feel like something you truly and ideally want to be doing, regardless of what you feel you should be doing?
- v) Personal Choice: To what extent did you choose it, i.e., not dictated to you by other people or circumstances?
- w) Avoid: To what extent does it focus on avoiding something negative?
- x) Prevention: To what extent does it focus on preventing bad things from happening?
- y) Should: To what extent does it feel like something that you SHOULD be doing regardless of what you would ideally like to be doing?
- z) Togetherness: To what extent are you doing it to feel close to other people?

aa) Work: To what extent is it focused on accomplishing goals at school or work

6. For this section, please enter the THIRD goal in the space provided.

7. Now, rate your goal on the following dimensions using the scale provided below:

Not at all	Very slightly	A little bit	Moderately	Quite a bit	Very much	Extremely
1	2	3	4	5	6	7

0.

- a) Chance: The outcome of this project essentially up to chance.
- b) Random: The outcome of this project will ultimately depend on random factors.
- c) No Control: Is it really beyond anyone's control how this project turns out.
- d) Authority: There is some person, agency, or authority I can turn to for help if I need it.
- e) Help: There is help available to me for dealing with this project.
- f) Others: There are other people or agencies who can help me manage this problem.
- g) Fate: This project will ultimately be successful if it is meant to be and there's really not much anyone can do about that.
- h) God: Only God knows whether or not this project is meant to succeed.
- i) External Causes: Causal factors beyond anyone's control will determine whether or not this project succeeds.
- j) Effort: Success will depend on how hard I work.
- k) Success: Success at this project is ultimately up to me.
- l) Personal Control: I am personally in control of how well this project goes.
- m) Approach: To what extent does it focus on approaching something positive?
- n) Promotion: To what extent does it focus on promotion of good things that you have high hopes for?
- o) Determination: How firmly determined are you to complete it, even if it requires sacrifices?
- p) Outcome: How likely are you to ultimately succeed at it?
- q) Competence: To what extent do you feel competent and able to pursue it?
- r) Value-Congruence: To what extent does it reflect the most important values that guide your life?
- s) Conviction: How certain do you feel that this is a project that you want to devote yourself to?
- t) Self-Identity: To what extent does it reflect the kind of person you really are, at your core?
- u) Conviction: To what extent does it feel like something you truly and ideally want to be doing, regardless of what you feel you should be doing?
- v) Personal Choice: To what extent did you choose it, i.e., not dictated to you by other people or circumstances?
- w) Avoid: To what extent does it focus on avoiding something negative?
- x) Prevention: To what extent does it focus on preventing bad things from happening?
- y) Should: To what extent does it feel like something that you SHOULD be doing regardless of what you would ideally like to be doing?

- z) Togetherness: To what extent are you doing it to feel close to other people?
- aa) Work: To what extent is it focused on accomplishing goals at school or work?

Appendix 14  
Powerful God Religious Zeal Scale

The following questions are about you and your beliefs. We are interested in understanding the relation between your unique attitudes, personality and beliefs. Please remember to answer as accurately as possible.

Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree
1	2	3	4	5

1. God takes care of me.
2. God protects me from danger.
3. God makes me feel secure.
4. God gives me good things.
5. God looks after me.
6. I feel like a child of God.
7. I get my strength from God.
8. God makes me powerful.
9. God gives me courage to take on the world.
10. I get the energy to accomplish great things from God.
11. With God on my side, nothing can defeat me.
12. I see myself as someone who is fighting for God.

Figure 1  
External control religious zeal as a function of economical external control threat and promotion focus.

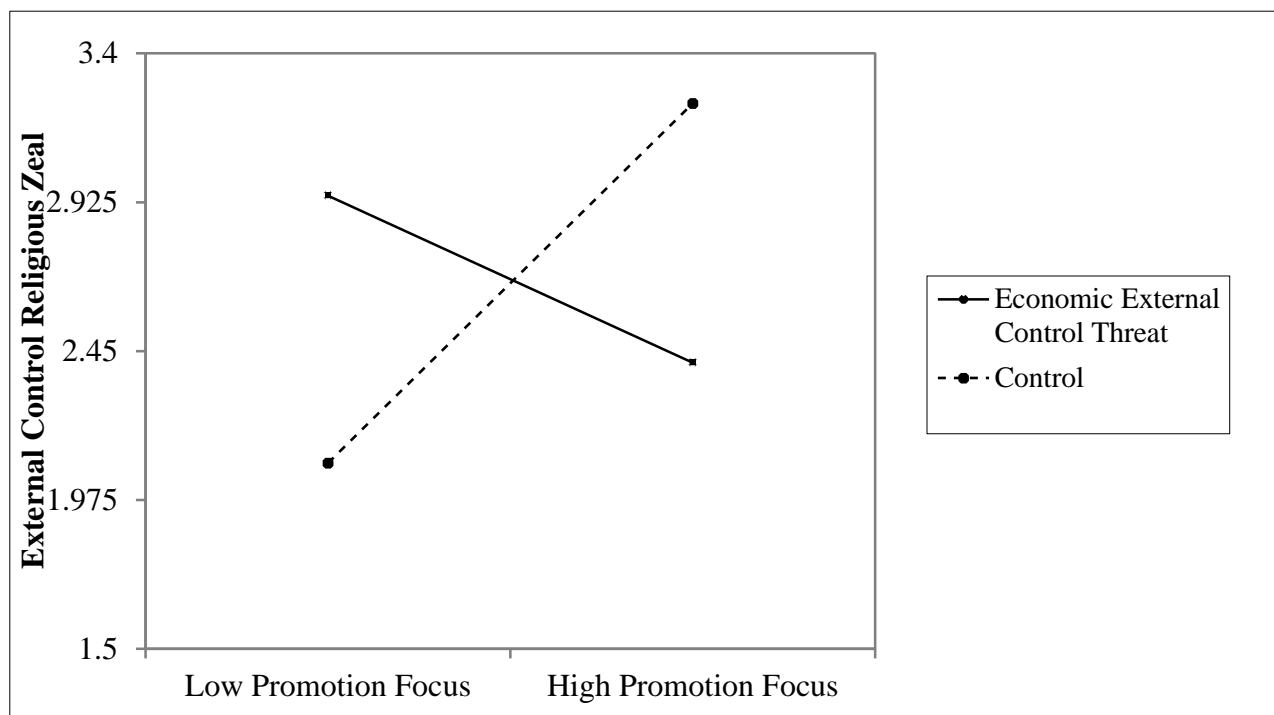


Figure 2  
Belief in a powerful and controlling god as a function of relational external control threat - unidentified cause and promotion focus.

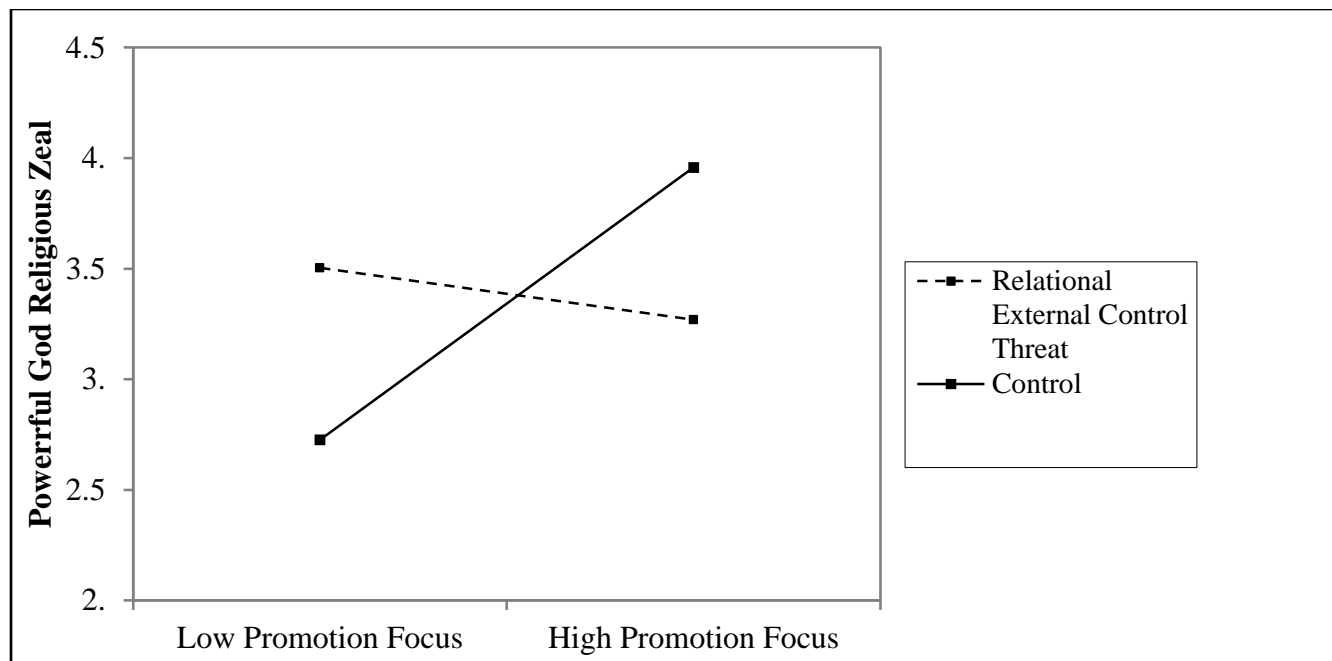


Table 1  
Study 1 intercorrelations of dispositional self-control measures.

	1	2	3	4	5	6	7	8	9	10	11	12	13
1. BIS	-												
2. BAS RR	.353**	-											
3. BAS D	-0.108	.426**	-										
4. BAS FS	-0.137	.420**	.457*	-									
5. Prevention Focus	.496**	.216**	-0.106	-0.064	-								
6. Promotion Focus	.268**	.486**	.283**	.182*	0.066	-							
7. Rumination/Reflection	.548**	.276**	-0.131	-0.06	.495**	.210**	-						
8. Self-Esteem	-.266**	.220**	.398**	.281**	-.410**	.321**	-.217**	-					

9. Perceived Social Support	0.091	.313**	.169*	0.146	-.161*	.246**	-0.134	.459**	-				
1. Emotional Uncertainty	.587**	.270**	0.049	-0.13	.567**	0.086	.578**	-0.378	-0.112	-			
11. Presence of Meaning	-0.033	.313**	.334**	.286**	-.201*	.353**	-0.137	.509**	.529**	-.220**	-		
12. Search for Meaning	.160*	.215**	0.099	0.137	.208**	.216**	0.129	-0.053	0.022	.277**	-0.15	-	
13. Personal Control Religious Zeal	0.018	.178*	0.131	0.107	-0.053	0.123	-0.036	.240**	.334**	-0.064	.432**	-0.01	-
14. External Control Religious Zeal	-0.04	0.097	0.088	0.092	0.057	0.068	0.036	0.039	.190*	0.001	.279**	0.106	.689**

\*  $p < .05$ . \*\*  $p < .0$



Table 2  
Principal component loadings of external and personal control religious zeal factors.

Religious Zeal Item	Personal Control Religious Zeal	External Control Religious Zeal
I am confident in my religious beliefs.	0.81	
I aspire to live and act according to my religious beliefs.	0.85	
My religious beliefs are grounded in objective truth.	0.79	
Most people would agree with my religious beliefs if they took the time to understand it rather than just relying on stereotypes about it.	0.71	
If my religious beliefs were being publicly criticized I would argue to defend them.	0.54	
I would support a war that defended my religious beliefs.		0.59
If I really had to, I would give my life for my religious beliefs.		0.79
In my heart I believe that my religious beliefs are more correct than others.		0.70
It is wise to keep a wary distance from people who distract me from living according to my religious beliefs.		0.73
In the end, those who oppress my religious beliefs will suffer for their ignorance.		0.79
If everyone followed my religious beliefs, the world would be a much better place.		0.76
Harmful misinformation is too often spread about my religious beliefs by ignorant people.		0.62
If necessary, I would endure much pain and suffering to stay true to my religious beliefs.		0.75
I will do whatever is necessary to help my religious beliefs prosper in society.		0.73
If I was sincerely convinced that God wanted me to do something extreme, I would do it.		0.72

Today's society is in desperate need of the wisdom of my religious beliefs.		0.68
My strongest relationships are with those who have the same religious beliefs as I do.		0.47
I believe that a powerful God or Godlike force shapes human destiny.	0.60	.51
Most important events in our world are guided by, and to some extent controlled by, the will of God or a Godlike force.	0.64	0.51

Table 3  
Study 2 intercorrelations of dispositional self-control measures.

	1	2	3	4	5	6	7	8	9	10	11	12	13
1. Self-Esteem	-												
2. Rumination/Reflection	-.363**	-											
3. Prevention Focus	-.332*	.535**	-										
4. Promotion Focus	.307**	.189**	.322**	-									
5. BIS	-.269**	.609**	.476**	.230**	-								
6. BAS RR	.263**	.231**	.231**	.597**	.388**	-							
7. BAS Drive	.253**	-.048	.109	.371**	-.009	.469**	-						
8. BAS FS	.131*	.008	.06	.233**	-.016	.459**	.488**	-					
9. BAS Mean	.268**	.084	.168*	.501**	.157**	.807**	.803**	.805**	-				
10. Emotional Uncertainty	-.396**	.632**	.556**	.093	.630**	.216**	.063	.013	.123*	-			
11. Action Orientation	.447**	-.644**	-.434**	.066	-.532**	-.059	.06	.108	.043	-.559**	-		
12. Powerful God	.04	.024	.158**	.169**	.093	.169**	.11	.021	.125*	.105	-.067	-	
13. Randomness/External Control	-.073	-.026	.124*	.038	-.022	-.011	.089	.033	.045	.176**	.031	.480**	-

\*  $p < .05$ . \*\*  $p < .01$ .

Table 4  
Principal component loadings of PPA factors.

PPA Item	Personal Control	Randomness & External Control	Helping Others	Prevention Focus
Chance: The outcome of this project essentially up to chance.		.80		
Random: The outcome of this project will ultimately depend on random factors.		.78		
No Control: Is it really beyond anyone's control how this project turns out.		.82		
Authority: There is some person, agency, or authority I can turn to for help if I need it.			.88	
Help: There is help available to me for dealing with this project.			.89	
Others: There are other people or agencies who can help me manage this problem.			.89	
Fate: This project will ultimately be successful if it is meant to be and there's really not much anyone can do about that.		.79		
God: Only God knows whether or not this project is meant to succeed.		.61		
External Causes: Causal factors beyond anyone's control will determine whether or not this project succeeds.		.79		
Effort: Success will depend on how hard I work.	.73			
Success: Success at this project is ultimately up to me.	.76			
Personal Control: I am personally in control of how well this project goes.	.73			
Approach: To what extent does it focus on approaching something positive?	.75			

Promotion: To what extent does it focus on promotion of good things that you have high hopes for?	.71			
Determination: How firmly determined are you to complete it, even if it requires sacrifices?	.83			
Outcome: How likely are you to ultimately succeed at it?	.78			
Competence: To what extent do you feel competent and able to pursue it?	.78			
Value-Congruence: To what extent does it reflect the most important values that guide your life?	.67			
Conviction: How certain do you feel that this is a project that you want to devote yourself to?	.85			
Self-Identity: To what extent does it reflect the kind of person you really are, at your core?	.75			
Ideals: To what extent does it feel like something you truly and ideally want to be doing, regardless of what you feel you should be doing?	.81			
Personal Choice: To what extent did you choose it, i.e., not dictated to you by other people or circumstances?	.74			
Avoid: To what extent does it focus on avoiding something negative?				.84
Prevention: To what extent does it focus on preventing bad things from happening?				.87
Should: To what extent does it feel like something that you SHOULD be doing regardless of what you would ideally like to be doing?				.72
Togetherness: To what extent are you doing it to feel close to other people?				
Work: To what extent is it focused on accomplishing goals at school or work?				

Table 5  
Principal component loadings of Powerful God factors.

Power God Items	Powerful God
God takes care of me.	.94
God protects me from danger.	.94
God makes me feel secure.	.94
God gives me good things.	.94
God looks after me.	.94
I feel like a child of God.	.86
I get my strength from God.	.94
God makes me powerful.	.93
God gives me courage to take on the world.	.93
I get the energy to accomplish great things from God.	.94
With God on my side, nothing can defeat me.	.93
I see myself as someone who is fighting for God.	.83